



مركز الإحصاء  
STATISTICS CENTRE

# Early Divorce Prediction in Abu Dhabi

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# The study

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- Divorce phenomena have increased in recent decades.
- Although divorce rates have declined slightly in Abu Dhabi Emirate, early divorce which happens in the first three years have increased rapidly.
- Couples' behaviors, demographic, and socio-economic characteristics are main factors that lead to the risk of divorce.
- Data mining techniques are applied to the social issues and can help us to understand the applications on the administrative records of divorces.

# Methodology

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- Predicting early divorce on the first 3 years through demographic indicators at time of marriage in Abu Dhabi Emirate are studied from the administrative records.
- Two classification and prediction methods which are logistic regression and decision tree are implemented.
- Two population are conducted:
  1. Emirati - Emirati marriage population
  2. Emirati - Non-Emirati marriage population

# Data Collection

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- 5,706 marriage contracts registered in ADJD from 2011 till 2014 were examined to determine if a divorce occurred during the first three years of marriage.
- 1,049 divorce contracts registered in the same period as 2011 was the base year of marriage.
- Only 65% of divorce contracts were linked by the date of marriage and date of birth of husband and wife, as missing of their Ids and names caused misleading of full situation.

# Only 65% of divorce contracts were linked (1,049 Cases)

Date of marriage  
contract



Husband date  
of birth



Wife date  
of birth



Matched  
cases

327

139

142

71

# Results

Model	Emirati - Emirati Model	Emirati - Non-Emirati Model
Logistic Regression	Decision tree works better than logistic regression model.	Decision tree works better than logistic regression model.
Decision Tree	<p>Decision tree shows meaningful interactions between variables better than logistic regression that shows the effect of each variable.</p> <p>Effective demographic variables are: number of wives, region, education level, and age.</p>	<p>Decision tree shows meaningful interactions between variables better than logistic regression that shows the effect of each variable.</p> <p>Effective demographic variables are: number of wives, previous marital status, kinship relation, education level, and age.</p>

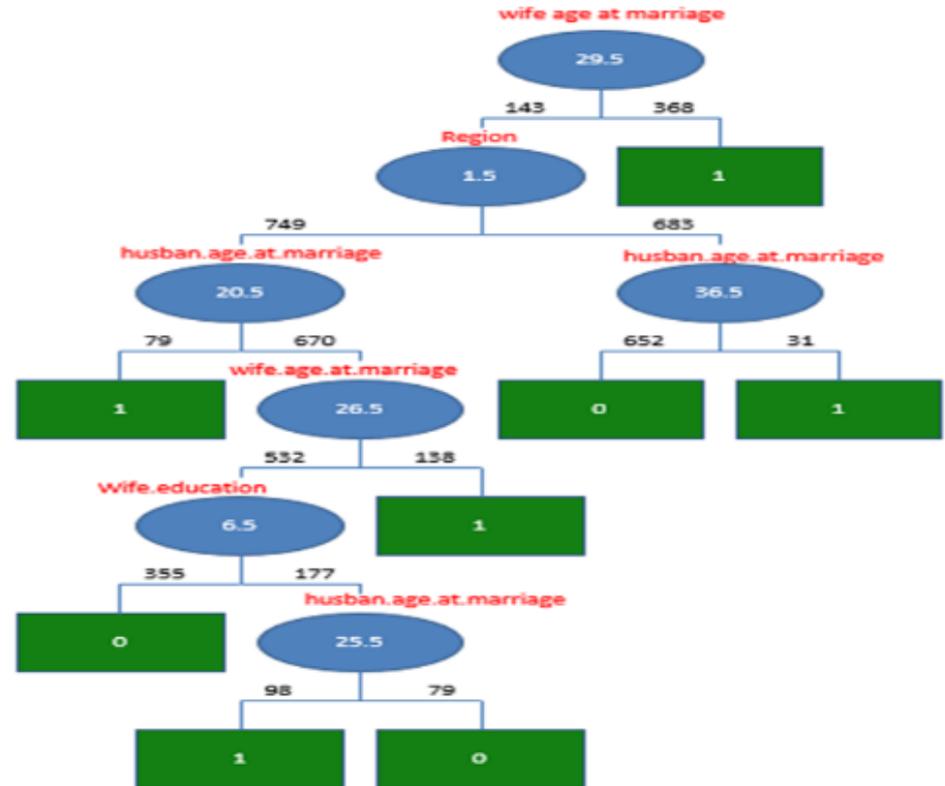
# Emirati - Emirati marriage Model Decision tree

The husband's number of wives at time of marriage shows the highest effect on the probability of divorce.

If the husband age at marriage is less than 20 years or more than 35 years, a marriage is more likely to result in marriage dissolution.

If the wife age at marriage is more than 29 years, a marriage is more likely to result in marriage dissolution.

Region appears only in the citizens model, and it was one of the strongest predictors with less urbanized regions being more favorable to marriage stability.



# Emirati - Emirati marriage Model Logistic regression

An increase in the husband's number of wives increase the odds of getting divorce almost 3 times

Living in Abu Dhabi increase the odds of getting divorce two times

One year increase in age difference also increase it 1.3 times

Sharing the same education level and attaining more that secondary level for the husband decrease it almost one time

Input Variables	Coefficient	Std. Error	P-Value	Odds	CI Lower	CI Upper
Intercept	-0.75	0.11	0.000	0.47	0.38	0.59
Husband.no.wives	1.06	0.13	0.000	2.90	2.27	3.71
abu dhabi Region	0.59	0.08	0.000	1.80	1.53	2.11
age.difference	0.26	0.06	0.000	1.29	1.15	1.45
same_Education_level	-0.18	0.08	0.000	0.83	0.71	0.98
husband above secondary	-0.24	0.09	0.000	0.79	0.67	0.93

## Limitations of the study

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- Not all couples in the divorce datasets could be matched with the marriage datasets for Abu Dhabi Emirate.
- Over sampling has to be used as over 50% over-sampling of divorce cases needed to build the model with the reasonable performance.
- Further analysis of the interdependence between the demographic variables needed to test the collinearity.

# Conclusion

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- Most of the demographic variables affect early divorce during the first three years of marriage in Abu Dhabi Emirate.
- Decision trees and logistic regression classification methods both succeed to predict early divorce.
- Data mining techniques can be applied to predict and classify social problems from administrative records.
- A study can be expanded to a wider range, such as U.A.E level, G.C.C level or even other regions.

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